

# Measuring Research and Development (R&D) Productivity

*An APQC consortium benchmarking study*

JUNE 3, 2004

R&D Measurement  
Free Webinar

To register:

[www.apqc.org/r&dwebinar](http://www.apqc.org/r&dwebinar)

*Conducted in conjunction with:*

**Goldense Group Inc.  
Subject Matter Expert**



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**“Performance measurement of research and development (R&D) and new product development activities is gaining increased importance because the effectiveness and efficiency of these activities not only determine a firm’s competitive advantage, but its very survival.” \***

## Project Scope

Imagine if your organization could increase its R&D investment success rate by a mere 5 percent, this would translate to an increase in revenues and profits of approximately 8 percent. In order to achieve these results, you would need to ensure your focus from R&D measures align with new ideas spurred by improved management science. Consider the project milestones depicted in Figure 1 and ask yourself if your organization is embracing new R&D principles that will increase productivity.

**This study will explore the optimization of investments in R&D that yield products and services that can be priced and sold.**

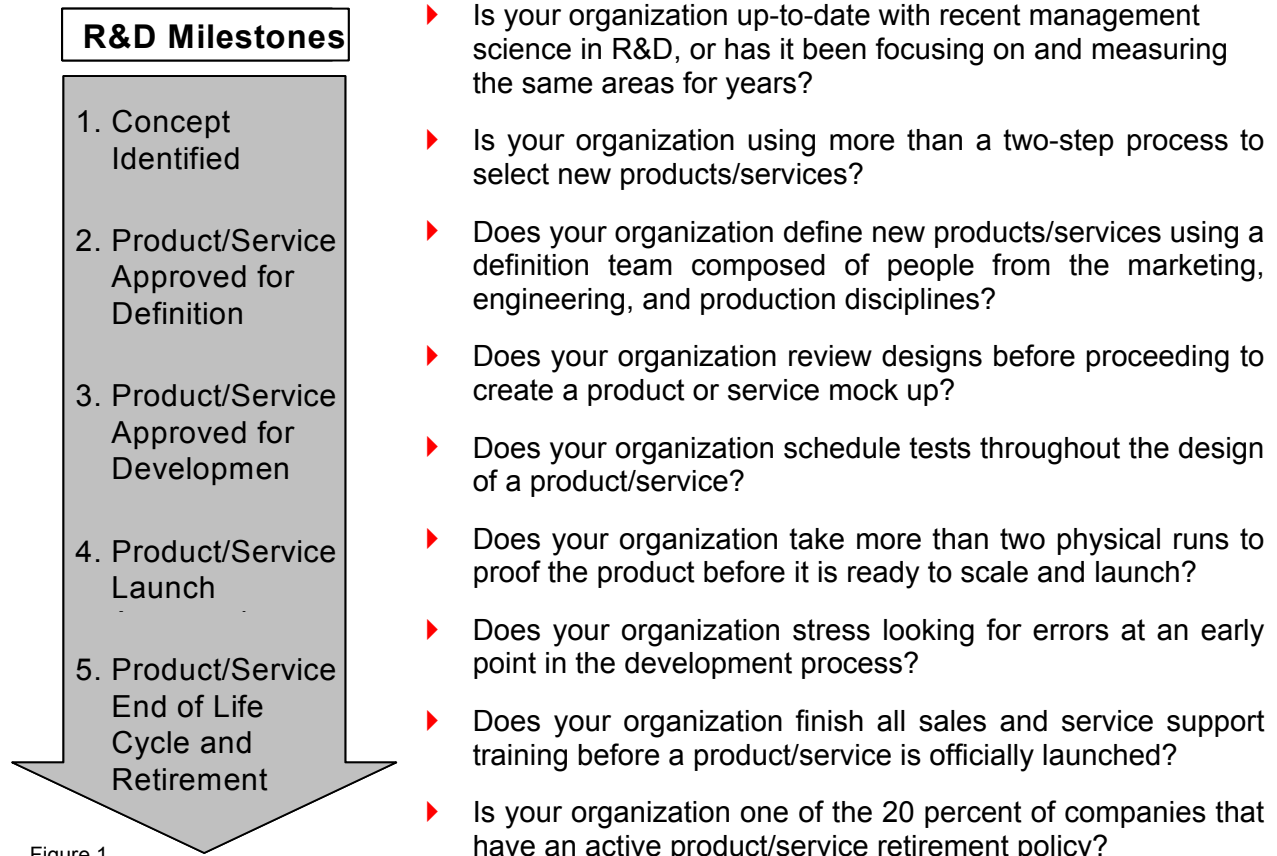


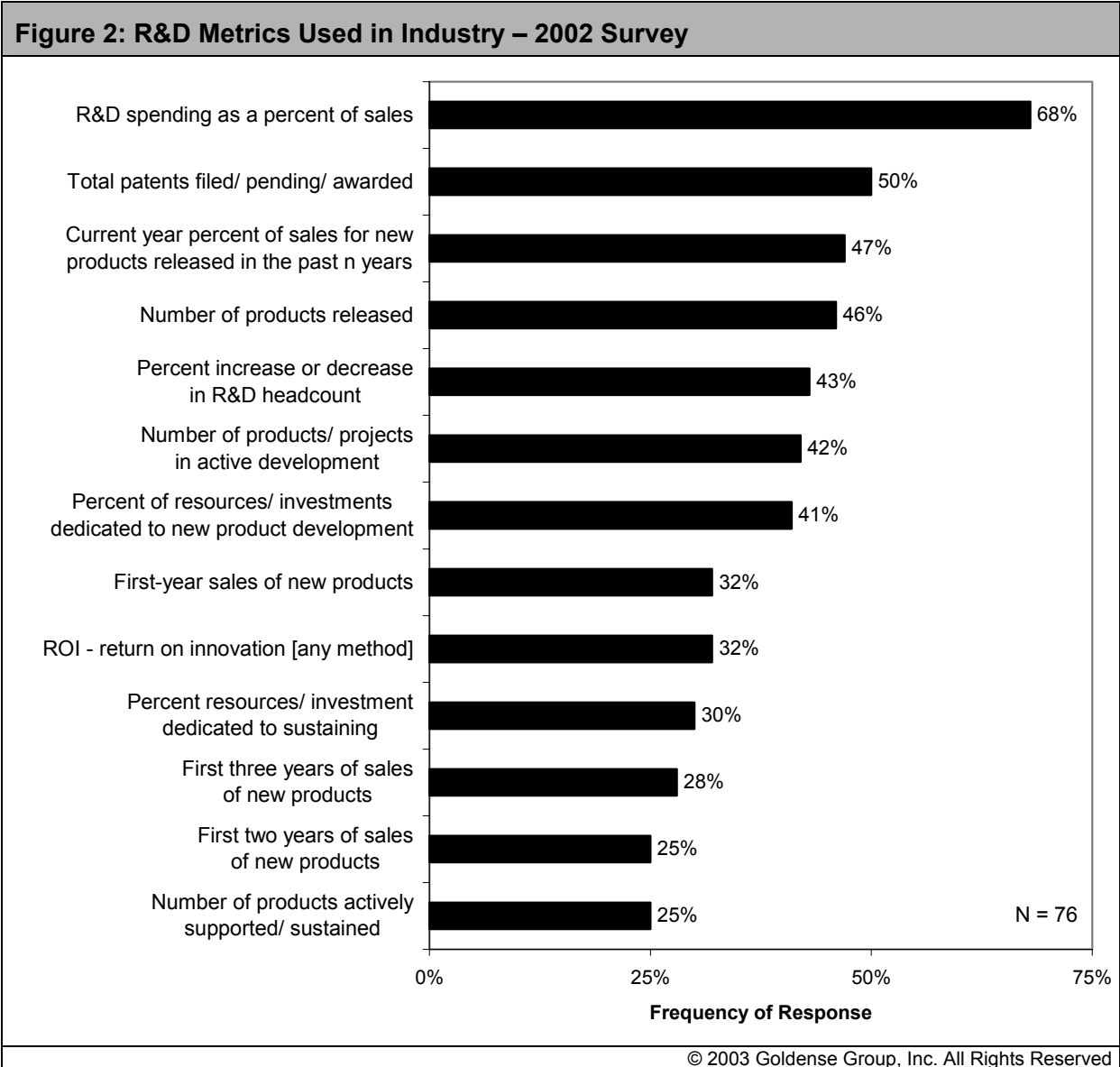
Figure 1

Productivity-focused executives have begun asking R&D functions such questions due to the reality of increasingly scarce resources. But how do you measure R&D productivity? And what are the most appropriate measures to use?

\* Godener, Armelle and Soderquist, Klas Eric (2004) Use and impact of performance measurement results in R&D and NPD: an exploratory study. *R&D Management* 34 (2), 191-219.

Organizations have struggled with an inability to establish a measurement system beyond the theoretical. R&D metrics need to be supported by the entire organization and lead to increased effectiveness from R&D investments and, in the long run, improved R&D efficiency and marketplace success. One element of this study is to explore and understand how best-practice organizations select the most appropriate combination of cost effectiveness, staff productivity, process efficiency, and cycle time metrics for R&D.

Figure 2 shows commonly cited metrics and reveals that only a handful of measures are commonly accepted. In addition, the top five R&D measures are not used to measure R&D itself. Instead, these measures appeal to the finance, legal, marketing, engineering, human resources, and accounting functions.



Measuring R&D activities is tempered by the impact of too little or too much process optimization within each organizational level. That is, an organization may focus too intently on maximizing productivity at a micro level, which may hinder the macro level innovation and productivity. Another element of this study is to discover how leading organizations define a strategy for managing process innovation to increase R&D productivity.

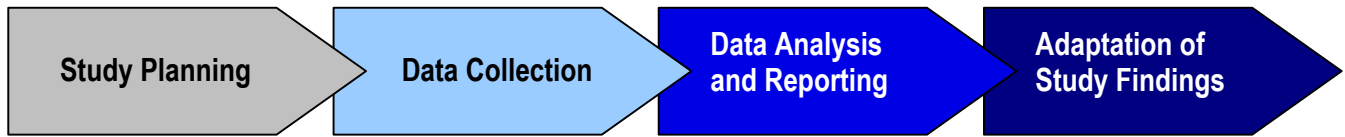
## Project Scope

To help organizations learn how to successfully measure R&D productivity, the American Productivity & Quality Center (APQC) is launching a consortium benchmarking study that will address three areas.

- 1. Identify the areas where improved attention, knowledge, and education would lead to higher R&D productivity.**
  - Understand how leading-edge organizations manage portfolios and the focus and number of innovative new product or service ideas.
  - Identify common elements, processes, or strategies that increase the productivity of both research and development, as opposed to those that are effective for one or the other (e.g., too much control may not be appropriate for research but could be effective in development).
  - Learn how leading-edge organizations take steps to operationalize a strategy for innovation.
  
- 2. Use measurement to increase visibility and awareness, which in turn will facilitate enhanced performance in R&D.**
  - Determine what to measure.
    1. Overall R&D performance
    2. Product/Service development project performance
    3. Functional performance
    4. Improvement projects
  - Examine how leading-edge organizations use performance management practices to drive the efficiency and effectiveness of R&D to the bottom line.
  - Identify qualitative and quantitative metrics.
  
- 3. Determine effective change management activities to support the realization of improved R&D productivity.**
  - Understand the effect of the measurement system on R&D performance.
  - Understand the behavior-based challenges related to implementing and maintaining a performance measurement system.
  - Learn how leading-edge organizations evaluate the productivity of knowledge workers.

## Project Approach and Methodology

Recognized as the world's top benchmarking methodology in 1995, APQC's approach has four primary phases.



- Refine project scope, key measures, and definitions based on research and sponsor input.
- Conduct research to identify best-practice organizations.
- Assemble sponsors for **kickoff meeting**.
  - Review a list of APQC-screened potential best-practice partners.
  - Select benchmarking partner candidates for site visits.
  - Refine data collection tools (detailed questionnaire and site visit guide).
  - Review site visit guidelines with sponsors.

- Collect quantitative data through detailed questionnaires that are administered, compiled, and analyzed by APQC.
- Collect qualitative data through sponsor participation in site visits to selected best-practice organizations.

- Identify practices that enable superior performance.
- Identify barriers to performance.
- Analyze trends.
- Prepare final report written specifically for study participants.
- Present key findings and insights at the study's concluding meeting, the **knowledge transfer session**.
  - Discuss key findings in depth.
  - Present speakers from partner organizations.
  - Provide systematic networking opportunities.
  - Facilitate sponsors' action plan development to adapt and implement best practices.

- Sponsors take study findings back to their organization for adaptation.

## Sponsor Benefits

APQC will use a variety of research methods to identify leading-edge organizations and then examine the practices that enable these organizations to make sound business decisions. APQC's project team handles the legwork, which allows you to focus on adapting the best practices that it uncovers.

- **Learn what measures** leading organizations are using to determine the productivity of their R&D efforts.
- **Examine strategies and tactics** for evaluating the effectiveness and efficiency of the functions contributing to your R&D success.
- **Discover ways to optimize your investment** in R&D to get the maximum return.
- **Uncover successful practices** you can adapt to your organization at a fraction of the cost of conducting a benchmarking initiative on your own.
- **Gather detailed quantitative (metric) data** for comparison and improvement purposes.
- **Influence the study's direction.** Sponsors provide input into the questions that are asked on the site visit guide (qualitative survey) and on the detailed questionnaire (quantitative survey).
- **Network** with peers from other sponsor and partner organizations, and receive the contact list for sponsors and partners who attend the project events.
- **Learn directly from R&D experts and knowledgeable practitioners** at best-practice and sponsor organizations.
- Gain access to **leading-edge knowledge** in a short span of time.
- **Involve your colleagues, senior executives, and/or process champions** by bringing them to the concluding knowledge transfer session so they also can take advantage of the key findings discussions, best-practice partner presentations, and networking opportunities.
- **Receive a valuable final report** with findings and best-practice partner case studies. Additionally, an electronic version of the final report will be available to disseminate throughout your organization.

## Study Expertise



**Bradford L. Goldense**  
**Founder and president**

Goldense Group Inc. (GGI) will be serving the study in the role of subject matter expert. Goldense is the founder and president of the 16-year-old consulting and education firm, which concentrates in advanced business and technology management practices for line management functions. He is a new product development professional certified by the PDMA, certified manufacturing engineer by the Society of

Manufacturing Engineers, a certified computer professional by the ICCP, and is certified in production and inventory management by the APICS. He is president of the Society of Concurrent Product Development. Additionally, Goldense is a past member of the Board of Directors of the American Society for Engineering Management.

Goldense has consulted to more than 100 of the Fortune 1000 and has **worked on productivity improvement and automation** projects in more than 300 manufacturing locations.

## Timeline

Early sign-up \$1,500 discount expires	May 17, 2004
Free Introductory Webinar	June 3, 2004
Meet the sponsors conference call	June 29, 2004
Kickoff meeting in Houston	July 20, 2004
Site visits	August to September 2004
Knowledge transfer session in Houston	November 16 to 17, 2004

## Pricing

Sign up by May 17, 2004 and receive a \$1,500 discount.

APQC members	\$16,000
Nonmembers	\$22,000

## About APQC

A recognized leader in benchmarking, knowledge management, measurement, and quality programs, the **American Productivity & Quality Center** helps organizations adapt to rapidly changing environments, build new and better ways to work, and succeed in a competitive marketplace. For the past 25 years, APQC has been identifying best practices, discovering effective methods of improvement, broadly disseminating findings, and connecting individuals with one another and with the knowledge, training, and tools they need to succeed. APQC is a member-based nonprofit serving organizations around the world in all sectors of business, education, and government.

### Previous APQC innovation and product development benchmarking studies

1. [Improving New Product Development Performance and Practices](#) (2003)
  - Consortium benchmarking study conducted with subject matter experts Robert G. Cooper, Scott Edgett, and Elko Kleinschmidt
  - Access a free copy of the executive summary at [www.apqc.org/pubs/improvenpd](http://www.apqc.org/pubs/improvenpd)
2. [Using Knowledge Management to Drive Innovation](#) (2003)
3. [Marketing Research for New Product Development](#) (2001)
4. [New Product Development: Gaining and Using Market Insight](#) (2001)
5. [Strategic Collaboration for New Product and Service Development](#) (1998)
6. [Managing Innovation for New Product Development](#) (1998)

## Find Out More

Take full advantage of the benefits of participating in this consortium benchmarking study by signing up before the kickoff meeting. To find out more about this project, our methodology, experience, and products and services, please visit APQC's Web site ([www.apqc.org](http://www.apqc.org)) or contact us at 800-776-9676 (713-681-4020 outside the United States) or [apqc.info@apqc.org](mailto:apqc.info@apqc.org).